

# **Proposed Workshop Topics For the BDCP Independent Science Advisory Process**

**June 27, 2007**

At this point, the Facilitation Team and Lead Advisor recommend a series of four independent science advisory workshops during 2007 and 2008 to help guide the BDCP planning process, pursuant to requirements of the independent NCCP science advisory process. Additional workshop topics or questions could arise during the planning process, at the discretion of the Steering Committee. This document briefly introduces the intent of each workshop, the types of scientific expertise that should be involved, and the nature of the questions that would guide discussions.

The precise timing and order of these workshops will be determined with input from the Steering Committee to ensure that the workshops are timed to take best advantage of available information (e.g., the timing of consultant documents) and to most efficiently inform the process based on planning milestones.

The results of each workshop will be summarized in a draft advisory memo or report to the Steering Committee for review and comment prior to being finalized for public release. The purpose of Steering Committee review is to identify any factual errors or portions of the report that may require clarification, and not to influence the substance of the report. In no case shall the Facilitation Team allow for the Steering Committee or any other parties to influence the nature of the scientific recommendations in reports, which must substantially reflect the consensus recommendations of the Independent Science Advisors. The Facilitation Team, in consultation with the Lead Scientist, will review comments provided by the Steering Committee and work with Science Advisors to make appropriate adjustments and produce final workshop summary reports.

## **Workshop 1 -- Principles and Guidelines for Conservation**

### **Purpose:**

- Identify principles intended to form the scientific foundation for regional conservation planning under the NCCP Act,
- Define the bounds within which the ecological and conservation goals and objectives of BDCP and NCCPA may be achieved.
- Assess the knowledge base available for planning
- Identify the critical processes and scales of variability that the plan must embrace

**Types of Expertise:** Pelagic Fish, Anadromous Fish, Terrestrial Ecology, Aquatic Ecology, Hydrology, Geomorphology, Ecotoxicology, Landscape Ecology, Invasive Species, Aquatic Foodwebs, Tidal Wetlands, Avifauna Ecology, Delta Operations, Water Quality Modeling, Population Modeling, Ecosystem Modeling, Aquatic Invertebrates, Estuarine Vegetation, Restoration Ecology

### **Questions to Address**

#### Conservation Principles

What basic principles are appropriate to guide ecosystem restoration and conservation of species and natural communities in this area? How should the plan consider the current highly altered nature of the system in the development of sustainable conservation strategies? What approaches to conservation should guide the development of conservation strategies (e.g., focus on natural processes, self-sustaining outcomes)? What physical or biological characteristics should be considered in defining conservation goals for the study area

to ensure sustainable outcomes (e.g., invasive species, flows and transport pathways, water qualities, or climate regimes)? What ecological gradients need to be considered (e.g., water depths, salinity, temperature regimes, substrate types)?

### Plan Scope

Which natural communities and species, or groups of species, must be addressed by the plan to achieve the plan's biological goals? Are there any additional communities or species that could be added to the proposed covered-species and communities list to assist in developing or assessing conservation strategies (e.g., "planning" species with no special protection status but that may serve as useful indicators)? What the most effective ways of defining natural communities or otherwise grouping species to assist in developing and assessing conservation strategies (e.g., species guilds, resident vs. anadromous, common responses to conservation or covered activities)?

Is the geographic scope of the effort adequate for regional conservation planning? What improvements could be made to improve development or assessment of conservation strategies?

### Knowledge Base for Planning

Do the documents you reviewed (e.g., an Ecological Baseline Report) appropriately compile and interpret existing information, and do they present a firm scientific foundation for conservation planning? Are there additional data sources or literature pertaining to the resources of the plan area that should be considered during planning and analysis?

What gaps in existing information create the greatest uncertainties for planning, analyzing, managing, and monitoring effective conservation in this setting? How can these data gaps be addressed during the planning phase? Do you have or know of any pertinent additional data on ecosystem dynamics?

What if any models of physical or biological processes might be useful in the development of conservation strategies, (e.g., ecological models of population or community dynamics, or models of nutrient or water flows)? Are sufficiently accurate and precise input data available to use these models in planning?

### Critical Processes

What ecological processes were historically most critical to maintaining ecosystem and species viability? Which of these are most important or most altered in the current system? Given the highly altered nature of the current ecosystem, which of these processes can be effectively incorporated into future conservation strategies to compensate for effects of covered activities on natural communities and species?

How can long-term processes or cycles (e.g., population dynamics, disturbance cycles, ecological migration) be effectively addressed? What effects might climate change have on this ecosystem and the target species, and how can these effects be effectively addressed?

How are current or future land uses likely to directly or indirectly affect the success of conservation strategies? How might other existing or ongoing regional conservation plans in the vicinity of the Bay Delta affect covered resources and conservation strategies? What other issues must be addressed to confidently assess plan effects on species or ecosystem viability (e.g., invasions, harvest, population genetics, etc.)?

## **Workshop 2 – Analytical Tools and Assessment Techniques**

**Purpose:** Provide advice to the BDCP Steering Committee regarding analytical tools and assessment techniques that could be used to help design, refine, and evaluate conservation strategies, and to analyze

likely effects of plan implementation on covered resources (including the conservation and take of covered species, communities, and ecosystem processes).

**Types of Expertise:** Systems Analysis, Delta Ecosystem Dynamics, Ecosystem Modeling, Water Resource Planning, Population Modeling, Aquatic Ecology, Terrestrial Ecology.

### **Questions to Address**

What objective methods are recommended for designing a necessary and sufficient set of conservation strategies to meet plan goals? Are there any explicit algorithms that can assist the planning process, and are existing data sufficient for their application? How can scientifically justifiable goals be set for such methods in this plan area? How should uncertainties about plan effects be addressed in the conservation analysis?

What analytical tools and assessment techniques are available and appropriate for evaluating the proposed conservation actions and their effects on covered resources? What level of information is required to inform the use of these tools? What are the strengths and weaknesses of the different tools and techniques? Are there examples where various tools and techniques been used elsewhere for similar decision making processes?

How should plan effects on target resources (e.g., covered species, planning species, natural communities, ecosystem processes) be quantified? What types of metrics should be used to assess the performance of conservation options relative to plan goals?

## **Workshop 3 -- Scientific Issues and Uncertainties Underlying the Draft Conservation Strategy Framework**

**Purpose:** Assess scientific foundation of the selected conservation strategy framework. Identify critical uncertainties and assess how these may limit the likely effects on covered resources.

**Types of Expertise:** Subset of Principles and Guidelines group with addition of new, previously not involved advisors as “fresh” eyes.

### **Questions to Address**

What scientific assumptions underlying the proposed conservation strategy create the greatest uncertainties about plan effects on target resources? Does the proposed conservation strategy adequately address the near-term and long-term needs of natural communities and species covered by the plan? Are there important scientific uncertainties that might limit the success of the conservation strategy? What assumptions and uncertainties can be addressed before plan adoption using existing information?

## **Workshop 4 – Adaptive Management, Monitoring, and New Information**

**Purpose:** Develop framework and guidance for the mandatory adaptive management and monitoring program. Assess the developing state of knowledge regarding natural communities and species in the plan area and identify any new information that should be incorporated into the planning process.

**Types of Expertise:** Subset of Principles and Guidelines group, potentially supplemented with experts in population monitoring.

## **Questions to Address**

Based on current understanding of the proposed conservation strategies and existing information, what management actions are necessary and sufficient to sustain and enhance covered species and communities? What specific biological threats in the study area should be the targets of management? What specific management tools can be used to minimize these threats to maintain and enhance populations of covered species?

What are the expected benefits of ecological restoration or habitat creation in the study area? What are the most effective methods for habitat restoration, creation, or enhancement for the various communities, species, and processes covered by the plan?

What specific management principles or hypotheses are most important to test via the adaptive management program? What specific aspects of the environment should be monitored (e.g., species distributions, population sizes or trends, community diversity, water quality or flow dynamics, disturbance factors, invasive species)? Can we define measurable thresholds or acceptable ranges for these monitoring metrics beyond which specific management or monitoring actions might be triggered in the adaptive management program?

What specific monitoring protocols are necessary and sufficient to detect changes in natural communities, species populations, or ecological processes? Are there good indicator or umbrella species or habitat qualities or community characteristics that can be monitored as proxies for other species or aspects of ecosystem health that are more difficult or costly to monitor (e.g., the use of aquatic insect diversity as an index of aquatic biological integrity)?

What procedures should be used to learn from monitoring data to improve future implementation of conservation strategies? What aspects of an adaptive management program are necessary to ensure conservation goals are achieved during any interim measures implemented prior to major structural modifications of the system?

Has any new information regarding natural communities or species, or the nature of the effects of covered activities, come to light since the draft conservation strategy was developed that could inform the development and/or implementation of conservation strategies or actions?